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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
MARKHAM, WESLEY D	

ART UNIT	PAPER NUMBER
1762	

DATE MAILED: 01/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/746,228	NAKAMURA ET AL.
	Examiner	Art Unit
	Wesley D Markham	1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 November 2003 and 29 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *13-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *13-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application on 12/29/2003 after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office Action (i.e., the final Office Action, mailed on 8/26/2003) has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/26/2003 has been entered.

Priority

2. Acknowledgement is made of the certified English language translations of the foreign priority documents (i.e., JP 11-369355, filed on 12/27/1999, and JP 00-383072, filed on 12/18/2000) submitted by the applicant as paper #s 21 and 22 on 6/6/2003. These documents have been reviewed by the examiner.

Drawings

3. The proposed drawing correction and/or the proposed substitute sheets of drawings (i.e., 1 sheet, amending the "REFLECTIVITY" axis in Figure 3), filed on 11/8/2002, has been approved by the examiner. A proper drawing correction or corrected drawings are required in reply to the Office Action to avoid abandonment of the application. The correction to the drawings will not be held in abeyance.

INFORMATION ON HOW TO EFFECT DRAWING CHANGES

Correction of Informalities -- 37 CFR 1.85

New corrected drawings must be filed with the changes incorporated therein. Identifying indicia, if provided, should include the title of the invention, inventor's name, and application number, or docket number (if any) if an application number has not been assigned to the application. If this information is provided, it must be placed on the front of each sheet and centered within the top margin. If corrected drawings are required in a Notice of Allowability (PTOL-37), the new drawings **MUST** be filed within the **THREE MONTH** shortened statutory period set for reply in the "Notice of Allowability." Extensions of time may NOT be obtained under the provisions of 37 CFR 1.136 for filing the corrected drawings after the mailing of a Notice of Allowability. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

Corrections other than Informalities Noted by Draftsperson on form PTO-948.

All changes to the drawings, other than informalities noted by the Draftsperson, **MUST** be made in the same manner as above except that, normally, a highlighted (preferably red ink) sketch of the changes to be incorporated into the new drawings **MUST** be approved by the examiner before the application will be allowed. No changes will be permitted to be made, other than correction of informalities, unless the examiner has approved the proposed changes.

Timing of Corrections

Applicant is required to submit acceptable corrected drawings within the time period set in the Office action. See 37 CFR 1.185(a). Failure to take corrective action within the set (or extended) period will result in **ABANDONMENT** of the application.

4. Applicant is reminded that the Patent and Trademark Office no longer makes drawing changes and that it is applicant's responsibility to ensure that the drawings are corrected in accordance with the instructions set forth above.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 13, 15, 17, 18, 23, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anzaki et al. (USPN 6,316,110 B1).

8. Regarding independent **Claim 13**, Anzaki et al. teach a method for producing a transparent laminate, specifically an electromagnetic wave filter for a plasma display panel (Abstract), the method comprising the steps of preparing a transparent substrate (Col.1, lines 5 – 15, Col.3, lines 10 – 11), depositing a transparent dielectric layer having a refractive index of up to 2.8 (i.e., a "high refractive index" film) on the substrate, depositing a silver transparent conductive thin film on the

dielectric layer, repeating the aforementioned steps three times to obtain three combination thin film layers on the substrate, and depositing another transparent dielectric layer (i.e., "high refractive index" film) on the combination thin film layers (Col.3, lines 1 – 25, Col.4, lines 14 – 40, Col.5, lines 1 – 9, Col.6, lines 8 – 12 and 45 – 55, and Figure 2). The layers are deposited by a "vacuum dry process" such as sputtering (Col.6, lines 13 – 29). Anzaki et al. do not explicitly teach that the temperature of the substrate at the time of deposition of the silver films is between 340 K and 390 K, inclusive. However, Anzaki et al. do teach heating the substrate to a temperature of 300° C (i.e., 573 K) or lower during the silver film formation (Col.6, lines 20 – 23). The teaching of Anzaki et al. of a substrate temperature of 300° C or lower overlaps the applicant's claimed temperature range. Overlapping ranges are *prima facie* evidence of obviousness. It would have been obvious to one of ordinary skill in the art to have selected the portion of Anzaki et al.'s temperature range that corresponds to the applicant's claimed range (*In re Malagari*, 184 USPQ 549 (CCPA 1974)). Regarding **Claims 15 and 17**, Anzaki et al. also teach depositing a low-refractive-index transparent thin film, such as a protective resin film that has a refractive index of, for example, 1.58 (Col.5, lines 43 – 61). The low refractive index film (i.e., the resin film) is deposited after all of the high-refractive index thin films are deposited (Col.5, lines 62 – 65). Please note that a refractive index of 1.58 is considered by the applicant to be a low-refractive index (page 21, lines 20 – 21 of the applicant's specification). Regarding **Claim 18**, Anzaki et al. also teach forming a plasma display panel (PDP) filter with the transparent laminate by disposing the

transparent laminate in front of a display portion of a PDP (Abstract, Col.1, lines 5 – 15 and 61 – 67, Col.2, lines 1 – 14, and Col.3, lines 26 – 27). Regarding **Claim 23**, Anzaki et al. also teach that the "vacuum dry process" comprises a sputtering process (Col.6, lines 13 – 29). Regarding **Claim 25**, Anzaki et al. also teach that the repeated depositing is repeated only three times to form three combination thin-film layers (Figure 2 and Col.6, lines 46 – 55).

9. Claims 16 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anzaki et al. (USPN 6,316,110 B1) in view of Okamura et al. (USPN 6,104,530).

10. Anzaki et al. teach all the limitations of **Claim 16** as set forth in paragraph 8 above, except a method wherein the low-refractive index transparent thin film is deposited before any of the high-refractive index thin films are deposited. However, Anzaki et al. do teach that an antireflective surface treatment can be applied to the surface of the transparent substrate before applying the electromagnetic wave shield film (i.e., before any of the high-refractive index thin films are deposited) (Col.6, lines 30 – 35). Anzaki et al. do not explicitly teach that the antireflective surface treatment comprises a low-refractive index transparent thin film. However, Okamura et al. teach that, in the art of producing transparent laminates for PDP filters (i.e., a process analogous to both that of Anzaki et al. and the applicant), antireflection films may comprise a low refractive index layer such as magnesium fluoride or silicon oxide (Col.21, lines 13 – 36) and are utilized to prevent lighting equipment from being mirrored in the display screen and making the presented image hard to see

(Col.20, lines 9 – 11). Therefore, it would have been obvious to one of ordinary skill in the art to utilize a low refractive index layer such as magnesium fluoride or silicon oxide as the antireflective layer on the substrate of Anzaki et al. with the reasonable expectation of (1) success, as Anzaki et al. teach antireflective surface treatments in general for PDP filters and Okamura et al. teach that low refractive index layers of magnesium fluoride or silicon oxide are suitable as antireflective layers, and (2) obtaining the benefits of using an antireflective film, such as preventing lighting equipment from being mirrored in the display screen and making the presented image hard to see. Please note that magnesium fluoride and silicon oxide are disclosed by the applicant as examples of low-refractive index thin films (page 22, lines 12 – 14 of the applicant's specification).

11. Anzaki et al. teach all the limitations of **Claim 24** as set forth in paragraph 8 above, except for a method wherein the silver transparent conductive thin film comprises silver and 5% by weight of gold. However, Anzaki et al. do teach that the silver transparent conductive thin film comprises silver and a certain percentage of palladium in order to obtain an electromagnetic wave shield film having sufficient moisture and heat resistance (Col.4, lines 4 – 7). Okamura et al. teach that, in the art of producing transparent laminates for PDP filters (i.e., a process analogous to both that of Anzaki et al. and the applicant), it is known that silver lacks chemical and physical stability and tends to deteriorate under the action of water vapor, heat, etc. (Col.9, lines 18 – 27). Further, Okamura et al. teach that, to solve this problem, silver is alloyed with at least one metal having high environmental stability, for example

gold or palladium (Col.9, lines 28 – 31). In other words, Okamura et al. teach the functional equivalence of gold (as claimed by the applicant) and palladium (as taught by Anzaki et al.) as metals that can be alloyed with silver in order to increase the environmental stability of the silver. The content of silver in the alloy is greater than 50% by weight and less than 100% by weight, thereby providing a gold or palladium content in the alloy of greater than 0% by weight and less than 50% by weight (i.e., a percentage that encompasses the applicant's claimed range) (Col.9, lines 35 – 37). Therefore, it would have been obvious to one of ordinary skill in the art to utilize a silver and gold alloy in which the content of gold in the alloy is greater than 0% by weight and less than 50% by weight (i.e., a range that encompasses the applicant's claimed alloy of 5% by weight of gold), as taught by Okamura et al., as the silver transparent conductive thin film of Anzaki et al. instead of a silver and palladium alloy, as taught by Anzaki et al., with the reasonable expectation of success and obtaining similar results (i.e., advantageously increasing the environmental resistance of the silver layer), regardless of whether palladium is used as the environmentally stable metal or gold is used as the environmentally stable metal.

12. Claims 14, 19, 21, 22, 26, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anzaki et al. (USPN 6,316,110 B1) in view of Noreika et al. (USPN 3,915,764) and either Nulman (USPN 5,754,297) or Shiroishi et al. (USPN 4,833,020).

13. Anzaki et al. teach all the limitations of **Claim 14** as set forth in paragraph 8 above, except that (1) the temperature of substrate at the time of the deposition of the silver films is between 340 K and 390 K, inclusive, and (2) the deposition rate R (nm/sec) of the silver films is set to be R = (1/40) x (T – 300) $\pm$ 0.5. However, Anzaki et al. do teach heating the substrate to a temperature of 300° C (i.e., 573 K) or lower during the silver film formation (Col.6, lines 20 – 23). The teaching of Anzaki et al. of a temperature of 300° C or lower overlaps the applicant's claimed temperature range. Overlapping ranges are *prima facie* evidence of obviousness. It would have been obvious to one of ordinary skill in the art to have selected the portion of Anzaki et al.'s temperature range that corresponds to the applicant's claimed range (*In re Malagari*, 184 USPQ 549 (CCPA 1974)). Anzaki et al. are silent as to the deposition rate of the silver films. However, Anzaki et al. are particularly concerned with the thickness of the silver films (Col.4, lines 15 – 40). Noreika et al. teach that, in the art of depositing films by a sputtering process (i.e., the process taught by Anzaki et al. to deposit the silver films), deposition rate is a controllable variable and is dependent on substrate temperature (Col.4, lines 43 – 53). Both Nulman and Shiroishi et al. teach that the deposition rate in a sputtering process is an important processing characteristic and can be determined experimentally (i.e., is a result / effective variable) (Col.3, lines 12 – 26 of Nulman, and Col.3, lines 14 – 16, 23 – 25, and 55 – 62 of Shiroishi et al.). Therefore, it would have been obvious to one of ordinary skill in the art to optimize the deposition rate as a result / effective variable in the silver film sputtering process of Anzaki et al. through routine experimentation with the

reasonable expectation of (1) success, as Noreika et al. teach that deposition rate is a controllable variable in a sputtering process, and (2) obtaining the specific film thickness of each silver film as desired by Anzaki et al. by controlling the deposition rate. Please note that the discovery of an optimum value of a result / effective variable is generally considered to be within the skill of the art (*In re Boesch*, 205 USPQ 215 (CCPA 1980)). As **Claims 19, 21, 22, 26, and 28** correspond to Claims 15, 17, 18, 23, and 25, please see paragraph 8 above for the appropriate teachings in Anzaki et al.

14. Claims 20 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anzaki et al. (USPN 6,316,110 B1) in view of Noreika et al. (USPN 3,915,764) and either Nulman (USPN 5,754,297) or Shiroishi et al. (USPN 4,833,020), and in further view of Okamura et al. (USPN 6,104,530).

15. The combination of Anzaki et al., Noreika et al., and either Nulman or Shiroishi et al. teaches all the limitations of **Claims 20 and 27** as set forth above in paragraph 13, except for (1) a method wherein the low-refractive index transparent thin film is deposited before any of the high-refractive index thin films are deposited (Claim 20), and (2) a method wherein the silver transparent conductive thin film comprises silver and 5% by weight of gold (Claim 27). However, these limitations are rendered obvious in light of the teachings of Okamura et al. for the reasons set forth in paragraphs 10 and 11 above.

16. Claims 13, 15 – 18, and 23 – 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okamura et al. (USPN 6,104,530) in view of Kenzo et al. (JP 09-176837 A).

17. Regarding **Claim 13**, Okamura et al. teach a method of producing a transparent laminate, specifically an optical filter (Abstract), the method comprising the steps of preparing a transparent substrate (Abstract), depositing a high refractive index transparent film, depositing a silver transparent conductive film on the high refractive index transparent film, repeating the aforementioned deposition steps three to six times to form three to six combination thin film layers on the substrate, and depositing another high-refractive index transparent film on the surface of the combination thin film layers (Abstract, Col.4, lines 38 – 54, Col.5, lines 1 – 5, Cols.6 – 7, Col.9, lines 18 – 67, Col.27, lines 6 – 67, Col.28, lines 1 – 14, and Figure 2). The layers are deposited by a "vacuum dry process" such as sputtering (Col.11, lines 45 – 67, and Col.12, lines 1 – 8). Okamura et al. do not explicitly teach that the substrate has a temperature of between 340 K and 390 K, inclusive, at the time of the deposition of the silver films. Specifically, Okamura et al. are silent as to the substrate temperature during the deposition of the silver films in the sputtering process of their invention. Kenzo et al. teach a similar method of forming a transparent laminate by sandwiching a silver layer between two high refractive index oxide layers (paragraphs [0011], [0018], and Figure 1). The layers are all formed by a sputtering process (i.e., the same process taught by Okamura et al. to form the layers) (paragraph [0022]). In addition, Kenzo et al. teach that the sputtering process

for forming all the layers (including the silver layer) is performed at a substrate temperature between room temperature and 180° C (paragraph [0022]). Therefore, it would have been obvious to one of ordinary skill in the art to utilize the substrate temperature taught by Kenzo et al. (i.e., between room temperature and 180° C) when performing the silver film deposition process of Okamura et al. with the reasonable expectation of success (i.e., successfully depositing the silver film by sputtering as desired by Okamura et al. at an operable substrate temperature as taught by Kenzo et al.). In addition, the teaching of Kenzo et al. of a substrate temperature of between room temperature and 180° C overlaps the applicant's claimed temperature range. Overlapping ranges are *prima facie* evidence of obviousness. It would have been obvious to one of ordinary skill in the art to have selected the portion of Kenzo et al.'s temperature range that corresponds to the applicant's claimed range (*In re Malagari*, 184 USPQ 549 (CCPA 1974)). Further, regarding **Claims 15 – 17**, Okamura et al. teach that antireflective films comprising low-refractive index transparent thin films such as magnesium fluoride or silicon oxide can be formed either (1) on the transparent substrate (i.e., before the deposition of the multi-layer film, and thus before the deposition of any high-refractive index thin film) or (2) on the multi-layer film (i.e., after the deposition of all of the high-refractive index thin films) (Col.21, lines 13 – 50). Regarding **Claim 18**, Okamura et al. also teach forming a PDP filter with the transparent laminate by disposing the transparent laminate in front of a display portion of a plasma display panel (Abstract, Col.1, lines 60 – 61, and Col.2, lines 34 – 37). Regarding **Claim 23**,

Okamura et al. also teach that the vacuum dry process comprises a sputtering process (Col.11, lines 45 – 67, and Col.12, lines 1 – 8). Regarding **Claim 24**, Okamura et al. also teach that the silver transparent conductive thin film comprises silver and greater than 0% but less than 50% (i.e., a range that encompasses the applicant's claimed value of 5%) of an environmentally stable metal such as gold (Col.9, lines 18 – 37). Regarding **Claim 25**, Okamura et al. also teach that the repeated depositing is repeated only three times to form three combination thin-film layers (Abstract and Examples 1 and 2).

18. Claims 14, 19 – 22, and 26 – 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okamura et al. (USPN 6,104,530) in view of Kenzo et al. (JP 09-176837 A), in further view of Noreika et al. (USPN 3,915,764) and either Nulman (USPN 5,754,297) or Shiroishi et al. (USPN 4,833,020).

19. The combination of Okamura et al. and Kenzo et al. teaches all the limitations of **Claim 14** as set forth in paragraph 17 above, except that (1) the temperature of substrate at the time of the deposition of the silver films is between 340 K and 390 K, inclusive, and (2) the deposition rate R (nm/sec) of the silver films is set to be $R = (1/40) \times (T - 300) \pm 0.5$. However, the teaching of Kenzo et al. of a substrate temperature of between room temperature and 180° C overlaps the applicant's claimed temperature range. Overlapping ranges are *prima facie* evidence of obviousness. It would have been obvious to one of ordinary skill in the art to have selected the portion of Kenzo et al.'s temperature range that corresponds to the

applicant's claimed range (*In re Malagari*, 184 USPQ 549 (CCPA 1974)). Both Okamura et al. and Kenzo et al. are silent as to the deposition rate of the silver films. However, Okamura et al. are concerned with the thickness of the silver films (Col.10, lines 34 – 47). Noreika et al. teach that, in the art of depositing films by a sputtering process (i.e., the process taught by Okamura et al. to deposit the silver films), deposition rate is a controllable variable and is dependent on substrate temperature (Col.4, lines 43 – 53). Both Nulman and Shiroishi et al. teach that the deposition rate in a sputtering process is an important processing characteristic and can be determined experimentally (i.e., is a result / effective variable) (Col.3, lines 12 – 26 of Nulman, and Col.3, lines 14 – 16, 23 – 25, and 55 – 62 of Shiroishi et al.). Therefore, it would have been obvious to one of ordinary skill in the art to optimize the deposition rate as a result / effective variable in the silver film sputtering process of Okamura et al. through routine experimentation with the reasonable expectation of (1) success, as Noreika et al. teach that deposition rate is a controllable variable in a sputtering process, and (2) obtaining the specific film thickness of each silver film as desired by Okamura et al. by using an appropriate deposition rate. Please note that the discovery of an optimum value of a result / effective variable is generally considered to be within the skill of the art (*In re Boesch*, 205 USPQ 215 (CCPA 1980)). As **Claims 19 – 22 and 26 – 28** correspond to Claims 15 – 18 and 23 – 25, please see paragraph 17 above for the appropriate teachings in Okamura et al.

Response to Arguments

20. Applicant's arguments filed on 11/26/2003 have been fully considered but they are not persuasive.

21. Regarding the 35 U.S.C. 103(a) rejections based on Anzaki et al., the applicant attempts to rebut the *prima facie* case of obviousness by showing the criticality of / unexpected results for the claimed substrate temperature range of 340 K to 390 K, as recited in independent Claims 13 and 14. In response, the examiner notes that the prior art, specifically Anzaki et al., teaches a substrate temperature of 573 K or lower, a range which completely encompasses the applicant's claimed temperature range. Further, the examiner notes that, in order to rebut a *prima facie* case of obviousness by establishing criticality / unexpected results, the results (i.e., the evidence of non-obviousness) must be commensurate in scope with the claims which the evidence is offered to support (See MPEP 716.02(d); *In re Clemens*, 206 USPQ 289, 296 (CCPA 1980); and *In re Grasselli*, 218 USPQ 769, 777 (Fed. Cir. 1983)). This is not the case in the instant application. First, the examiner notes that samples (1) – (4) were produced using temperatures within the applicant's claimed range, while samples (5) – (8) were produced using temperatures outside the applicant's claimed range. However, the lowest temperature tested within the applicant's claimed range was 353 K (sample (2)). Temperatures tested below 353 K include 333 K (sample (5)) and 303 K (sample (6)), both of which are outside the applicant's claimed range. As such, why is 340 K the critical low-end cutoff point for substrate temperatures? The examiner notes that the low end of the claimed range

(i.e., 340 K) is much closer to 333 K (i.e., a temperature which gives undesirable results according to the applicant) than to 353 K (i.e., a temperature which gives desirable results according to the applicant). As such, how does the applicant know that temperatures between 340 K and 353 K give the desired results (i.e., are "critical")? Therefore, this showing of criticality / unexpected results is not commensurate in scope with the claims of the instant application. Second, the examiner notes that independent Claims 13 – 14 are drawn to depositing the silver films by any vacuum dry process (e.g., vacuum vapor deposition, ion plating, sputtering), while the results shown in samples (1) – (8) were obtained using a sputtering method only (see page 26 of the applicant's specification). Thus, the results are not commensurate in scope with the claims. Third, the examiner notes that independent Claims 13 – 14 are open to a number of different silver-containing films, such as silver and one member or two or more members selected from the group consisting of gold, copper, palladium, platinum, manganese, and cadmium (see pages 20 – 21 of the applicant's specification and page 11 of the applicant's remarks filed on 4/29/2002), while the results shown in samples (1) – (8) were obtained using only silver containing 5% by weight of gold (see page 25, line 25, and page 26, lines 1 – 3 of the applicant's specification). Therefore, the results are not commensurate in scope with the claims. Fourth, the applicant's claims are open to any number of combination thin film layers greater than or equal to three so long as a transparent laminate is produced, while the results shown in samples (1) – (8) were only obtained for three combination thin film layers. Thus, the results are not

commensurate in scope with the claims. The applicant relies upon the processes described in the specification to show "unexpected results". The claims must be commensurate in scope with the showing of unexpected results, and therefore commensurate in scope with the processes described in the specification used to show the unexpected results. How does the applicant know that the claimed temperature range is critical for vacuum dry processes other than sputtering? How does the applicant know that the claimed temperature range is critical for different alloys of silver than the one tested? The applicant has provided no data to support a showing of unexpected results commensurate in scope with the claims.

22. Second, the applicant argues that the examiner can point to no motivation or suggestion in the references to modify the Anzaki et al. reference as alleged by the examiner. In response, the only "modification" made to the Anzaki et al. reference alone is the selection of a portion of the disclosed temperature range that corresponds to the applicant's narrower, claimed temperature range. Please note that, in the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art", a *prima facie* case of obviousness exists (*In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ 2d 1934 (Fed. Cir. 1990)).

23. Third, the applicant argues that one of ordinary skill in the art would not have combined Anzaki et al. and Okamura et al., absent hindsight, because the references are directed to completely different matters and problems. In response, the examiner strongly disagrees with the applicant's position. Both Anzaki et al. and

Okamura et al. are drawn to methods of making a transparent laminate that has excellent electromagnetic wave shielding characteristics so as to function as a filter for a plasma display panel. Both Anzaki et al. and Okamura et al. produce the filter using almost identical processes (i.e., sputtering alternating layers of a silver transparent conductive thin film and a high-refractive index dielectric thin film). As such, the references are directed toward similar matters and problems, not different matters and problems as alleged by the applicant. The applicant's assertion that the laminate disclosed by Anzaki et al. is an improvement over the laminate disclosed by the Okamura et al. reference, even if valid, does not in any way preclude the references from being combined in the manner suggested by the examiner.

24. Fourth, the applicant argues that the Okamura et al. reference does not teach or suggest that a low-refractive index anti-reflection (AR) coating is any better than any other AR coating, and therefore there would have been no motivation to substitute the anti-reflection coating of Anzaki et al. with a low-refractive index AR coating disclosed in Okamura et al. because there is no benefit to be obtained. In response, the selection of a known material, in this case the low-refractive index AR coating material(s) taught by Okamura et al., based on its suitability for its intended use, in this case as an anti-reflective surface treatment taught generally by Anzaki et al., supports a *prima facie* case of obviousness (See MPEP 2144.07). In other words, Okamura et al. teach a specific type of coating (i.e., a low-refractive index coating) that can be successfully used as an AR coating in the production of a PDP filter. It would have been obvious to one of ordinary skill in the art to utilize this specific

coating as the "antireflective surface treatment" taught generally by Anzaki et al. because it is suitable for this intended use. 35 U.S.C. 103(a) does not require some specific benefit in order to properly combine prior art references – there must only be a reason, suggestion, or motivation to combine the references. In this case, the reason to combine the references in the manner done so by the examiner is that Anzaki et al. clearly desire some sort of "antireflective surface treatment", and Okamura et al. teach a known, specific type of "antireflective surface treatment" (i.e., a low-refractive index coating) that is suitable for use in PDP filters.

25. Fifth, the applicant argues that Anzaki et al. does not teach or suggest applying a low-refractive index thin film before any high-refractive index thin film is deposited. In response, the examiner disagrees. Anzaki et al. explicitly teach applying an "antireflective surface treatment" to the surface of the transparent substrate having no electromagnetic wave shield film (Col.6, lines 32 – 34), which is equivalent to applying the "antireflective surface treatment" before any high-refractive index thin film is deposited, as claimed by the applicant.

26. Sixth, the applicant argues that Anzaki et al. would not have been combined with Noreika et al., Nulman, and/or Shiroishi et al. because the references are directed to completely different matters and problems. Specifically, the applicant states that the Noreika et al. reference is directed to the formation of semiconductor materials for use with microwave devices, and including such materials in the transparent laminate of Anzaki et al. would destroy the intended purpose of the laminate (i.e., render it non-transparent). In response, the examiner has not stated or argued that it

would have been obvious to utilize the semiconductor materials of Noreika et al. in the transparent laminate of Anzaki et al. Noreika et al. has simply been cited by the examiner to show that the deposition rate in a sputtering process is a controllable variable and is dependent on substrate temperature. The applicant also states that the Nulman reference is directed to the deposition of semiconductor devices, and the Shiroishi et al. reference is directed to providing a magnetic recording medium, and any modification of the transparent laminate of Anzaki et al. with the materials taught by Nulman and Shiroishi would destroy the intended purpose of the laminate of Anzaki et al. In response, the examiner has not stated or argued that it would have been obvious to utilize the materials taught by either Nulman or Shiroishi in the transparent laminate of Anzaki et al. The Nulman and Shiroishi references have simply been cited to show that the deposition rate in a sputtering process is an important processing characteristic and can be determined experimentally.

27. Seventh, the applicant again attempts to rebut the *prima facie* case of obviousness by showing the criticality of / unexpected results for the claimed substrate temperature range of 340 K to 390 K, as recited in independent Claims 13 and 14. This argument has been fully addressed by the examiner above in paragraph 21.

28. Eighth, the applicant argues that the inventors control the deposition rate to avoid the creation of islands (e.g., of silver material) that are shaped like spheres, while the thickness of the silver film of Anzaki et al. is controlled to provide adequate electromagnetic shielding and near infrared shielding properties. The applicant then states that the combination of references would not provide the results which are

achieved by the present invention. In response, the statement that the combination of references would not provide the results (i.e., the lack of creation of islands of silver material) which are achieved by the applicant's invention appears to be speculation on the part of the applicant and is not supported by any evidence of record. In fact, Anzaki et al. does not mention or teach that any islands of silver material are formed during the sputtering process.

29. Ninth, the applicant makes several arguments in section "D" of the remarks that parallel the arguments made by the applicant in previous sections. As such, these arguments have been fully addressed by the examiner in the paragraphs above.

30. Tenth, the applicant argues that the Okamura et al. reference and the Kenzo et al. reference would not have been combined as alleged by the examiner because the references are directed to completely different matters and problems. In response, the examiner disagrees. Both Okamura et al. and Kenzo et al. are drawn to methods of sputtering a silver thin film between layers of a transparent conductive film. These are similar matters, not different matters as alleged by the applicant.

31. Eleventh, the applicant argues that there is no motivation or suggestion to combine the Okamura et al. and Kenzo et al. references because there is nothing within either of the references which teaches or suggests that the deposition of the silver film as disclosed by Okamura et al. is not successful. In other words, the applicant argues that there is no reason to modify the Okamura et al. reference to deposit the silver film at the conditions (i.e., temperature) disclosed by Kenzo et al. In response, the examiner disagrees. Okamura et al. are silent as to the substrate temperature

during the deposition of the silver films in the sputtering process of their invention. Therefore, one of ordinary skill in the art would clearly have been motivated to search out and select an appropriate substrate temperature for sputter depositing a silver film in order to carry out the process of Okamura et al. Kenzo et al. teach a similar method of forming a transparent laminate by sandwiching a silver layer between two high refractive index oxide layers (paragraphs [0011], [0018], and Figure 1). The layers are all formed by a sputtering process (i.e., the same process taught by Okamura et al. to form the layers) (paragraph [0022]). In addition, Kenzo et al. teach that the sputtering process for forming all the layers (including the silver layer) is performed at a substrate temperature between room temperature and 180° C (paragraph [0022]). In other words, Kenzo et al. teach a substrate temperature that can be successfully utilized in the sputter deposition of a silver film, and one of ordinary skill in the art would have been motivated to use such a substrate temperature in the process of Okamura et al. due to the lack of guidance provided in Okamura et al. regarding substrate temperature. The fact that the temperature disclosed by Kenzo et al. is chosen to "secure etching fitness" does not change or take away from the fact that such a substrate temperature can be successfully utilized in the sputter deposition of a silver film, a process that Okamura et al. desires to carry out.

32. Twelfth, the applicant again attempts to rebut the *prima facie* case of obviousness by showing the criticality of / unexpected results for the claimed substrate temperature range of 340 K to 390 K, as recited in independent Claims 13 and 14. In response,

the examiner notes that the prior art, specifically Kenzo et al., teaches a substrate temperature of from room temperature to 180° C, a range that completely encompasses the applicant's claimed temperature range. Further, the examiner notes that, in order to rebut a *prima facie* case of obviousness by establishing criticality / unexpected results, the results (i.e., the evidence of non-obviousness) must be commensurate in scope with the claims which the evidence is offered to support (See MPEP 716.02(d); *In re Clemens*, 206 USPQ 289, 296 (CCPA 1980); and *In re Grasselli*, 218 USPQ 769, 777 (Fed. Cir. 1983)). This is not the case in the instant application. For further explanation, please see paragraph 21 above.

33. Thirteenth, the applicant argues that the Okamura et al. reference and the Kenzo et al. reference would not have been combined as alleged by the examiner because the references are directed to completely different matters and problems. In response, the examiner disagrees. Both Okamura et al. and Kenzo et al. are drawn to methods of sputtering a silver thin film between layers of a transparent conductive film. These are similar matters, not different matters as alleged by the applicant.

34. Fourteenth, the applicant argues that Okamura et al. would not have been combined with Noreika et al., Nulman, and/or Shiroishi et al. because the references are directed to completely different matters and problems. Specifically, the applicant states that the Noreika et al. reference is directed to the formation of semiconductor materials for use with microwave devices, and including such materials in the transparent laminate of Okamura et al. would destroy the intended purpose of the laminate (i.e., render it non-transparent). In response, the examiner has not stated or

argued that it would have been obvious to utilize the semiconductor materials of Noreika et al. in the transparent laminate of Okamura et al. Noreika et al. has simply been cited by the examiner to show that the deposition rate in a sputtering process is a controllable variable and is dependent on substrate temperature. The applicant also states that the Nulman reference is directed to the deposition of semiconductor devices, and the Shiroishi et al. reference is directed to providing a magnetic recording medium, and any modification of the transparent laminate of Okamura et al. with the materials taught by Nulman and Shiroishi would destroy the intended purpose of the laminate of Okamura et al. In response, the examiner has not stated or argued that it would have been obvious to utilize the materials taught by either Nulman or Shiroishi in the transparent laminate of Okamura et al. The Nulman and Shiroishi references have simply been cited to show that the deposition rate in a sputtering process is an important processing characteristic and can be determined experimentally.

35. Fifteenth, the applicant argues that the inventors control the deposition rate to avoid the creation of islands (e.g., of silver material) that are shaped like spheres, while the thickness of the silver film of Okamura et al. is controlled to achieve correct electrical conductivity and optical properties (i.e., transparency). The applicant then states that the combination of references would not provide the results that are achieved by the present invention. In response, the statement that the combination of references would not provide the results (i.e., the lack of creation of islands of silver material) which are achieved by the applicant's invention appears to be

speculation on the part of the applicant and is not supported by any evidence of record. In fact, Okamura et al. does not mention or teach that any islands of silver material are formed during the sputtering process, and Okamura et al.'s teaching that the silver film has the correct electrical conductivity and optical properties (i.e., transparency) at least suggests that such islands are not formed – if they were, the film would not have the desired electrical conductivity due to the discontinuous nature of the islanded-silver film.

36. Sixteenth, the applicant again attempts to rebut the *prima facie* case of obviousness by showing the criticality of / unexpected results for the claimed substrate temperature range of 340 K to 390 K, as recited in independent Claims 13 and 14. This argument has been fully addressed in the paragraphs above (see paragraphs 21 and 32 above).

37. Seventeenth and in response to the applicant's arguments presented in section "G" of the remarks, the examiner notes that, in order to rebut a *prima facie* case of obviousness by establishing criticality / unexpected results, the results (i.e., the evidence of non-obviousness) must be commensurate in scope with the claims which the evidence is offered to support (See MPEP 716.02(d); *In re Clemens*, 206 USPQ 289, 296 (CCPA 1980); and *In re Grasselli*, 218 USPQ 769, 777 (Fed. Cir. 1983)). This is not the case in the instant application. First, the examiner notes that samples (1) – (4) were produced using temperatures within the applicant's claimed range, while samples (5) – (8) were produced using temperatures outside the applicant's claimed range. However, the lowest temperature tested within the

applicant's claimed range was 353 K (sample (2)). Temperatures tested below 353 K include 333 K (sample (5)) and 303 K (sample (6)), both of which are outside the applicant's claimed range. As such, why is 340 K the critical low-end cutoff point for substrate temperatures? The examiner notes that the low end of the claimed range (i.e., 340 K) is much closer to 333 K (i.e., a temperature which gives undesirable results according to the applicant) than to 353 K (i.e., a temperature which gives desirable results according to the applicant). As such, how does the applicant know that temperatures between 340 K and 353 K give the desired results (i.e., are "critical")? Therefore, this showing of criticality / unexpected results is not commensurate in scope with the claims of the instant application. Second, the examiner notes that independent Claims 13 – 14 are drawn to depositing the silver films by any vacuum dry process (e.g., vacuum vapor deposition, ion plating, sputtering), while the results shown in samples (1) – (8) were obtained using a sputtering method only (see page 26 of the applicant's specification). Thus, the results are not commensurate in scope with the claims. Third, the examiner notes that independent Claims 13 – 14 are open to a number of different silver-containing films, such as silver and one member or two or more members selected from the group consisting of gold, copper, palladium, platinum, manganese, and cadmium (see pages 20 – 21 of the applicant's specification and page 11 of the applicant's remarks filed on 4/29/2002), while the results shown in samples (1) – (8) were obtained using only silver containing 5% by weight of gold (see page 25, line 25, and page 26, lines 1 – 3 of the applicant's specification). Therefore, the results are not

commensurate in scope with the claims. Fourth, the applicant's claims are open to any number of combination thin film layers greater than or equal to three so long as a transparent laminate is produced, while the results shown in samples (1) – (8) were only obtained for three combination thin film layers. Thus, the results are not commensurate in scope with the claims. The applicant argues that, because they have never argued the criticality of a sputtering process over other vacuum dry processes and the criticality of the particular silver-containing film over silver-containing films in general, the specification fully complies with 35 U.S.C. 112 and it is irrelevant whether or not the claim scope is broader than the processes described in the specification. In response, the examiner strongly disagrees with the applicant's statement that it is irrelevant whether or not the claim scope is broader than the processes described in the specification. In this case, it is extremely relevant. The applicant relies upon the processes described in the specification to show "unexpected results". The claims must be commensurate in scope with the showing of unexpected results, and therefore commensurate in scope with the processes described in the specification used to show the unexpected results. How does the applicant know that the claimed temperature range is critical for vacuum dry processes other than sputtering? How does the applicant know that the claimed temperature range is critical for different alloys of silver than the one tested? The applicant has provided no data to support a showing of unexpected results commensurate in scope with the claims. Contrary to the applicant's statement that the examiner is improperly extending the requirements of a showing of criticality as

to a claimed range to other features of the claims, the examiner is only stating that, in order to establish the criticality of a claimed range, the claims must be commensurate in scope with the results, and therefore the process used to obtain the results, used to support the criticality of the range.

Conclusion

The examiner notes that the incorporation of the limitations of (1) Claims 23 and 24 into independent Claim 13, and (2) Claims 26 and 27 into independent Claim 14 may be sufficient to render the claims of the instant applicant commensurate in scope with the showing of unexpected results, thereby making the claims allowable.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wesley D Markham whose telephone number is (571) 272-1422. The examiner can normally be reached on Monday - Friday, 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on (571) 272-1415. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Wesley D Markham
Examiner
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WDM

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